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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

KIM, CHONG R

ART UNIT

PAPER NUMBER

2623

DATE MAILED: 07/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/405,176

Applicant(s)

SHINBATA, HIROYUKI

Examiner

Charles Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7-10-02.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 16 and 19 is/are pending in the application.
- 4a) Of the above claim(s) 8-15, 17-18, 20-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 16 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Restriction

Applicant's election with traverse of group I, of claims 1-7, 16, and 19 in Paper No. 9 is acknowledged. The traversal is on the ground(s) that the three groups contain a common concept of eliminating a passing through area, accumulating pixel values in a predetermined direction, and extracting pixel characteristics based on the accumulated result.

This is not found persuasive because even though they share these concepts, each grouping is distinct and have a separate purpose. Group I does projection of an image, group II analyzes the density distribution of an image, and group III calculates an average pixel value and utilizes shape as an area for extraction.

Also, each group has a non-common limitation, for example group I has the limitation "a preparing step for preparing a projection from the image from which said passing through area is deleted", group II has the limitation "an analyzing step of analyzing a density distribution of said photographed image", and group III has the limitation "a calculating step of calculating an average pixel value of a predetermined axis direction from the image from which said passing through area is deleted".

The requirement is still deemed proper and is therefore made FINAL.

This application contains claims 8-15, 17, 18, 20, and 21 are drawn to an invention nonelected with traverse in Paper No. 9. A complete reply to the final rejection must include

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cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Drawings

Figures 19 and 20 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 5, 6, 7, 16, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kido (U.S. Patent No. 5,732,149), in view of applicant's admitted prior art disclosed in the Background of the specification on pages 1-3.

Referring to claim 1, Kido discloses an image processing method for extracting a characteristic amount of a photographed image comprising: preparing step of preparing a projection from the image (col. 2, line 1), and a setting step of setting a characteristic area of the photographed image based on a result of the projection (col. 1, line 65-col. 2, line 1). It is noted that a "characteristic area" in the claim language is interpreted as being analogous to the concerned region in the radiation image in col. 1, line 66).

Kido fails to disclose a passing through deleting step of deleting a passing through area from the photographed image. However, the applicant's admitted prior art teaches that this step was very common in the art. In lines 7-10 of page 2 of the specification, the applicant discloses that a histogram is obtained by deleting a passing through area from an X-ray image.

Therefore, since the applicant states that the deleting step is a conventional characteristic amount extracting method on page 2, line 19 of the specification, and since Kido is concerned with extracting a characteristic amount from an image (col. 1, lines 9-10), it would have been obvious to include the deleting step when preparing a projection of the image of Kido. Furthermore, since Kido obtains a histogram of the image (col. 2, line 3), it would have been obvious to include the deleting step in order to obtain the histogram.

Referring to claim 5, Kido further discloses that the characteristic area is set in accordance with a shape of the projection (col. 1, line 66-col. 2, line 1). It is noted that the "shape of the projection" in the claim language is interpreted to mean the local maximum and local minimum in the projection in col. 1, line 66, for example figure 17).

Referring to claim 6, Kido further discloses photographing a thoracic vertebrae (col. 14, line 62 and figure 14d). Although Kido does not explicitly include photographing a cervical

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vertebra, it would have been obvious to photograph a cervical vertebrae instead of a thoracic vertebrae, since both a cervical and thoracic vertebrae are parts of a human body that are commonly X-rayed for medical diagnosis purposes.

Referring to claim 7, Kido further discloses that the characteristic amount for the characteristic area is used to perform a gradation conversion processing (col. 2, lines 2-4).

Claim 16 recites an apparatus which corresponds to the method of claim 1. Arguments analogous to those presented above with respect to claim 1 are applicable to claim 16. The apparatus for performing Kido's method is inherent in his teaching.

Claim 19 recites a computer-readable recording medium on which a program for extracting a characteristic amount of a photographed image is recorded, which corresponds to claim 1. Arguments analogous to those presented above with respect to claim 1 are applicable to claim 19. While Kido does not appear to explicitly mention a computer-readable recording medium on which a program is recorded, this would have been clearly obvious in light of his disclosure. Note, for example, Kido discloses a CPU (col. 8, lines 8-10), thereby establishing his system as being or relating to a computer-based system.

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kido (U.S. Patent No. 5,732,149) and the applicant's admitted prior art as applied to claim 1, and further in view of Nakao (U.S. Patent No. 6,035,064).

Referring to claim 2, Kido fails to include a binarizing step of binarizing the photographed image from which the passing through area is deleted, and preparing a projection of the binarized image.

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However, preparing a projection of binarized images was very common in the art. For example, Nakao discloses a binarizing process that binarizes an image (col. 4, lines 1-3), and prepares a projection of the binarized image (col. 4, lines 24-26 and figure 10a).

Therefore, since both Kido and Nakao are both concerned with extracting a characteristic amount of an image by a projection, it would have been obvious to modify the preparing step of Kido, in order to prepare a projection of an image that has been binarized, as taught by Nakao, so that the image data can be simplified for quicker processing (Nakao, col. 6, lines 44-47).

3. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kido (U.S. Patent No. 5,732,149) and the applicant's admitted prior art as applied to claim 1, and further in view of Kanebako (U.S. Patent No. 5,680,471).

Referring to claim 3, Kido fails to include a weighting processing that is performed in accordance with an input pixel value.

However, Kanebako discloses a weighting processing (col. 11, lines 5-10) that is performed in accordance with an input pixel value (col. 11, line 13).

Therefore, since both Kido and Kanebako are both concerned with extracting a characteristic area from a photographed X-ray image, it would have been obvious to modify the preparing step of Kido, to include the weighting processing as taught by Kanebako, in order to extract a characteristic area based on the threshold that is determined by the weighting processing (Kanebako, col. 11, lines 5-10 and lines 29-30) to improve the extraction of this area from the background.

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Referring to claim 4, Kanebako further discloses a weighting processing as described above, that is performed in accordance with an input pixel position (col. 14, lines 31-32).

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Fujimoto U.S. Patent No. 5,864,779 discloses a strict recognizing apparatus using an observation point.
- b. Tsuchikawa U.S. Patent No. 5,748,775 discloses a method for moving object extraction based on background subtraction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Monday thru Thursday 8:30am to 6:00pm and alternating Fridays 9:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.


AMELIA M. AU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

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July 22, 2002